cortex in the posterior part of the motor region, in man, the dog and the mole. In these it appears that in the second and third Meynert's layers there is a difference in the proportion of cells and intercellular substance, the former being less, the latter being more abundant, the higher in the scale of intelligence we rise. The author has always claimed, in opposition to many authorities, that there is a difference in structure in the nerve cells from functionally different portions of the nervous system. The specific nervous substance is in very close relationship with the nerve cell. It is found, first, in the cell body—and here, according to Bethe, there are to be distinguished central fibrils and peripheral fibrils; second, it surrounds the cells with their dendrites as "a true closed and rather close-meshed net." (Held.) The dendrites seem to be designed for bringing cells into extensive relations with the specific nervous substance, and, considering the arrangement of the axis cylinder processes, the nerve cells seem to be "collection stations" for the fibrillary substance, "in which the fibrils undergo a rearrangement in behalf of conduction into other processes, and forming the axis cylinder process." The axis cylinders, coming together, form important nerve tracts. It must not be thought, however, that the nerve cell plays but a subordinate rôle in the work of the central organ, for while the researches of Bethe show that in invertebrates reflexes can be excited without the intervention of a cell these reflexes are feeble, and are soon exhausted.

In no case of psychical disturbance has the author failed to find a number of the cortical nerve cells diseased. The nerve cell is sterile, as far as reproducing other nerve cells is concerned, but is able to reproduce the fibrillary substance in large quantity. How is not known. The author next considers the portion of the cell staining with methylene blue, the tigroid or Nissl bodies. This is improperly called, since it is not homogeneous, but is composed of several substances which react differently in different cells. The nucleus next engages his attention; he shows that its structure is complicated and varies in different cells, and that it is composed of several differently reacting substances. The increase of capability, as we advance from the lower to the higher order of animals, is due to the ever greater division of labor among the individual cells, through their greater specialization. By the nerve cells, the nutritive functions of the gray matter and fibril tracts are regulated, and a condition of tension ready to set at liberty nervous impulses under the slightest irritation is produced. The position of the nerve cell as a collecting station has already been alluded to, and the question is raised if there are not fibrils which, running in the collaterals, enter the main axis cylinder without touching the nerve cell, a condition which Bethe has shown to exist in the case of the dendritic fibrils. However, even assuming this to be the case, the nerve cell does not lose its importance, since its intimate connection with the specific nervous substance cannot be denied. Both arise from the same basis, and their separation into nerve cell and nerve substance is interesting chiefly as an example of division of labor. ALLEN.

153. APUNTES PARA EL ESTUDIO ESTRUCTURAL DE LA CORTEZA VISUAL DEL CEREBRO HUMANO (Observations on the Structure of the Visual Cortical Area in Man). S. Ramon y Cajal (Revista Ibero-Americana de Ciencias medicas, March, 1899).

Cajal has given an extensive study with a complete literature on the structure of the cuneus and the cortex bordering on the calcarine fissure. This is but one of the author's many morphological studies on the cortex of the human brain. From without inward in the region of the cuneus he distinguishes eight different zones, as follows: 1. The molecular layer. 2. The layer of small pyramids. 3. Layer of medium sized pyramids. 4. Stellate layer or layer of Gennari. 5. Layer of small spheroidal cells. 6. Layer of giant pyramids. 7. Layer of polymorphous cells. 8. White substance. These layers are again divided, but the original should be consulted. In brief, the outer three layers are more or less typical. The layer of Gennari presents three structures: large stellate cells, large ascending fibers, which, by their rich ramifications, make up the horizontal striations of this layer, and axonal and collateral ascending fibers from the stratum below.

The layer of polymorphous cells consists of at least four types of cells. JELLIFFE.

PATHOLOGY.

154. ZUR HISTOLOGIE DER POLIOMYELITIS ANTERIOR CHRONICA (Histology of Chronic Anterior Poliomyelitis). Max Bielschowsky (Zeitschrift für klin. Med., Vol. xxxvii, Nos. 1 and 2, p. 1).

The patient described in this paper was seventeen years old. He was said to be as healthy as normal boys until his ninth year. At that age, without known cause, a flaccid atrophic paralysis began, and later involved the entire musculature of the extremities and trunk. The paralysis was first noticed in the lower limbs in the peroneal group. In the later stages of the disease the muscles of the neck were affected and the tongue was atrophied and paretic. The paralysis in the beginning of the disease preceded the atrophy; later this mode of involvement was not so noticeable, but the paralysis was always more pronounced than the atrophy. Contracture and kyphoscoliosis developed in the course of the disease. The diagnosis of chronic poliomyelitis was made. The contractures, which were of an extreme type, were not spastic but paralytic, and developed later than the atrophic paralysis. The tendon reflexes were absent and the paralyzed muscles were flaccid. The motor cells presented marked quantitative and qualitative changes throughout the cord as high as the hypoglossal nucleus, and the anterior horn cells which are nourished exclusively by the central artery, were most diseased, while those near the periphery of the anterior horn, which receive some nourishment from the peripheral arteries, were not quite as much diseased. Cells other than motor in the anterior horns were also affected. The nerve fibers and neuroglia fibers of the anterior horns were diminished in number; the intramedullary portions of the anterior roots were much degenerated; the vessels of the anterior horns were diseased and new vessels were formed; round cell infiltration, recent and old hemorrhages were seen in the anterior horns. The lateral pyramidal tract showed no degeneration except by the Marchi method, and even by this method the degeneration was insignificant.

SPILLER.

155. STUDIES ON GANGLION CELLS. J. Ewing (Archives of Neurology and Psycho-pathology, I, 1898, p. 283).

Ewing here gives, in a monograph of 180 pages with six plates, the most comprehensive contribution to ganglion cell pathology yet published. For wealth of material, character of research, bibliographical completeness, excellence of typography and high class illustrations, this monograph is exemplary.

He first discusses the subject of technic and gives a full bibliographical summary and advises the use of alcohol, 97 per cent.; alcohol and corrosive sublimate; formalin sublimate; Van Gehuchten fluid and formalin, 10 per cent, as of about equal service, especially when small pieces of tissue are used. The author's views with reference to